



Synthesis and Characterization of silver nanoparticles from *Allium cepa* and *Allium sativum* using electron microscopy and their antidiabetic activity

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Abstract:

The silver nanoparticles were synthesized from *Allium cepa* and *Allium sativa* extracts to evaluate their antidiabetic activity. Transmission electron microscopy (TEM) and Scanning Electron Microscopy (SEM) were used to distinguish the size and morphology of the nanoparticles attained from plant extracts. HR-TEM was used to study the crystal nature of the synthesized nanomaterials. The properties of the synthesized silver nanoparticles were characterized by FT-IR spectroscopy and UV-visible spectroscopy. The results proved that the synthesized nanoparticles were less than 100nm size, spherical in shape and crystal in nature. The in vitro antidiabetic activities revealed that the synthesized silver nanoparticles have higher level of α -amylase and α -glucosidase inhibitory activities. In addition, it also showed a better level of antioxidant activity. The cytotoxicity of the synthesized silver nanoparticles was studied in 3T3 pre-adipocytes cells and was showed that the green synthesized silver nanoparticles were non-toxic to the 3T3 pre-adipocytes cells. It was concluded that the electron microscopy will be a better characterization tool for the analysis of silver nanoparticles and the synthesized articles can be used as a phyto-medicine for the treatment of diabetes.

Biography:

D. Jini has completed his PhD at the age of 27 years from Manonmaniam Sundaranar University, Tirunelveli, India. She



is an Assistant Professor in the Department of Chemical Engineering, Hindustan Institute of Technology and Science. She has published more than 20 papers in reputed journals and has been serving as an editorial board member of several reputed journals.

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